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The Lumber Trade Journals.

IN all the older parts of our country where there are no government lands, the various interests which depend upon our forests and woodlands are chiefly in the hands of individual land owners and of lumbermen and it is important therefore that the persons interested in forestry should come into close relations with these two classes. The lumber trade papers and the recent improvements in their character are on this account worthy of special notice. They show marked gains in breadth of view and in seriousness, and the discussion of trade subjects is more direct, definite and business-like. The assumption that only lumbermen can have practical ideas on forestry subjects has been outgrown, and writers for the leading lumber journals recognize the community of interests which is involved in nationality and civilization, and which binds all the people of our country together. The clear perception of the fact that the functions of forests and their relations to the future timber supply of the country, the permanence of the streams and the fertility of the soil are matters in which all intelligent and patriotic Americans should feel interested, is a distinct advance.

The increased earnestness is the greatest gain. This has been brought about naturally by the operation of the laws of business and by the immense development of the interests represented by these papers, and these processes of expansion and improvement are still going on. Not long ago the writing in lumber journals—there was not much of it indeed—seemed intended to be humorous rather than informing, and the selections appeared to have been made by the office boy when in a hurry to get away to a ball-game, as they often had no relation to the objects of the paper, but merely filled up the space. At present the leading lumber papers are usually pretty well filled with interesting matter. Some of them have valuable special contributions descriptive of the timber resources of various regions of our country, which are evidently based on actual observation.

In some instances the old fashion of "bright" writing, which has no relation to facts, is still followed, but the method of accurate reporting, which is the basis of all real journalism, is gaining ground. One of the western lumber papers had an editorial article on the late annual meeting of the American Forestry Association at Philadelphia, which contained exactly as many errors as items of statement. The misrepresentation in such cases is not what most deserves attention, but the lack of intellectual seriousness, the slight way in which the writer manifestly thinks of his own work and of the important interests with which he deals.

The editor of a lumber trade paper has a chance to make his place highly influential and useful. This department of American journalism has undeveloped opportunities and capabilities which should make it attractive to young men of ability and education in the lumber business. There is no reason why the best writing of the time on forestry subjects should not be done in the offices of these papers, if such young men equip themselves with adequate knowledge and with the power of comprehensive thought. This last is one of the most important requirements for the people interested in forestry, too. They need to be able to "look before and after," as Shelley says, to understand relations and tendencies, and to estimate rightly the effect of forces which operate slowly. Our country needs more men who can think of interests beyond the limits of their own farm, town or state. Some men in New England, for example, think the discussion and agitation of forestry subjects unnecessary, because in their neighborhood there is more woodland than there was thirty years ago. We call a worn out field woodland, though it may have but half a dozen specimens of *Pinus rigida* to the acre, and these worried and crippled by cattle past all possibility of useful growth; and though the area of woodland may have increased, there is, in many instances, far less of valuable timber than formerly. A jaunty and superficial optimism is often comfortable for thoughtless people, but no man can treat our national forest-interests adequately who does not understand the possibilities of tragedy which are involved in our methods of mismanagement.

What do the intelligent and public spirited men who are interested in forestry subjects desire? What are their wishes and aims? That the forests and woodlands of the country shall be managed intelligently, so that the greatest benefit, service and profit for all concerned can be obtained from them. What do sensible and practical lumbermen and owners of timber lands desire? Precisely the same things, of course. We are all interested in forestry, as we are in agriculture, and whatever leads to wiser knowledge and better methods advances the general welfare. The lumber people and the forestry people are alike interested in having timber cut off with foresight and calculation, and in having the land so cared for and protected that the timber will grow again, and that it will be perpetually reproduced on all land which is fit for no other crop. What is the good or sense of wanton waste and destruction, however limitless our supply of timber may be supposed to be? Not many years ago a citizen was remonstrating with an army officer when he and his men had killed over thirty buffaloes one afternoon, when only their tongues, and not all of them, could be used. But the officer replied that if the whole army of the United States were constantly employed in killing buffaloes no impression could be made upon their numbers. He is still living, but he will never dine on buffaloes' tongues again.

Not long ago it was pointed out to a farmer in southwestern Iowa that if the Black Walnut which he had been cutting for firewood for thirty years had been allowed to stand it would now have been worth more than the entire farm would sell for without it. He was surprised, but, after a few moments, said he did not doubt it. "But," he added, "it is too much trouble to think of anything so far ahead." Perhaps we cannot reasonably expect the mass and average of our fellow-citizens to learn to act with habitual recognition of laws and forces which operate so slowly

as those which manifest themselves in the relations of forests to the welfare of men and nations, but unless the teachers and leaders of the people are capable of such foresight our proper national destiny is imperiled. The nation which cannot take care of its forests, its streams or its soil is likely to be found wanting in other things when new conditions arise requiring wisdom, forethought and self-control.

We all need to learn. It is not safe to assume that any class of people knows all there is to be known on any subject. When we differ let us express our opinions plainly and directly, and stand up for them man-fashion, and expect other men to do the same. It is good American style to say what we mean and mean what we say. No important subject of our time has yet had adequate discussion in this country. It is of the first importance that forestry subjects should come to be regarded as matters of general public interest and concern; that they shall not be fenced off into a narrow arena for petty contentions between specialists, the forestry people on the one side and lumbermen on the other, while the country remains generally indifferent and absorbed in other affairs. These subjects are so large and vital, and have such relations to our national welfare, that it is reasonable that intelligent and practical men should inform themselves regarding them. They can do this only by acquaintance with the literature of these subjects, and with their systematic presentation and continuous discussion in journals which treat such topics intelligently and earnestly. All thoughtful men will, therefore, wish for the lumber trade journals the greatest possible success.

Our London correspondent describes in another column an interesting meeting of the Royal Horticultural Society, held on the 13th of May, at which a discussion upon hardy trees and shrubs with showy flowers was the principal feature, considerable collections of the flowers of such plants being shown by the authorities of the Royal Gardens at Kew and by some of the nurserymen who make a specialty of cultivating them. This exhibition and the discussion which it provoked are indications, perhaps, that the English, who still set the fashion to the world in gardening, are at last beginning to realize that they have unduly neglected of late years deciduous trees and shrubs in favor of evergreens, which, as our correspondent points out, have been too much planted in England during the last thirty years. They have their place, and have greatly increased the material available for the use of the modern gardener. It is equally true, however, that modern English gardens have been made monotonous and uninteresting by the excessive use of such plants, which, even in England, do not thrive everywhere, and which in cities and their suburbs seem always out of place because they are never really healthy when brought within the influence of city smoke and dirt. We in America can well rejoice at this change of English feeling, or, to speak more accurately, this return to the ideas of the early part of the century, when deciduous trees and shrubs with handsome flowers were held to be the chief ornament of the garden. We have followed the fashion set in England here and tried to cultivate conifers and broad-leaved evergreens, generally with the most unsatisfactory results. The climate of eastern America is not favorable to plants of this nature; but if deciduous trees and shrubs are to become fashionable again, we have all the natural conditions in our favor, and if we cannot show the world the effects such plants are capable of producing, it will be because our gardeners lack the intelligence to strike out for themselves and make the most of their advantages.

American gardening, as has been said before more than once in these columns, if it ever ceases to follow foreign fashions and attains to a national school of its own, will owe its excellence to a more general use of deciduous plants than now prevails, and to the development of new and better forms of such plants.

It is only a visit to Central Park on a pleasant Saturday afternoon in May, when the lawns are covered with children, that can give the real idea of its immense value to this city. Many of these children dwell in crowded tenement-houses, and the full enjoyment of a breath of fresh air amid rural surroundings must seem to them like a foretaste of heaven. It seems incredible that any one with any interest in New York and in its people, with the memory of such a sight in his mind, can for a moment be willing to see any part of the park alienated from the purposes which primarily make it useful, and devoted to any other use. Central Park is truly a marvelous creation, when it is considered what it was made from, and that it is in the heart of one of the large cities of the world. Its supreme merit lies in the fact that it reproduces Nature as no other great-city park in the world does, with the single exception of Prospect Park, in Brooklyn. As compared with the parks of London, Paris, Berlin or Vienna, Central Park is pure country, where the city-dweller can forget bricks and mortar and revel in the delights of trees and grass, of moss-covered rocks, and meadows dotted with wild flowers. There are prospects in Central Park, like some of those from the foot of the terrace looking across the lake, which are as far removed from all idea of city surroundings and city life as if they looked out upon the banks of some lake a hundred miles away in a remote and wild part of the country; and these views represent all of the country that thousands of children born in this city ever know. Surely every effort to deprive our people of any of the natural beauties of Central Park must be thwarted, whatever effort it may cost the intelligent men and women who have at heart the best interests of the city.

The park is already too small for the demands made on it by the public. In a few years it will be so crowded on holidays that its usefulness will be seriously interfered with. No part of it, therefore, should be given up for any purpose whatever which in any way will interfere with its real mission, which is to bring to the people of this city a little of the country and its civilizing and health-giving influences.

A Stone Bridge in Wales.

As an interesting contrast to the stone bridge at Topsfield, Massachusetts, which we illustrated a short time ago, we give on page 275 a picture of a similar bridge in Wales. The picture speaks for itself with regard to the beauty that such bridges have, no matter what the character of their surroundings may be. In the former instance we saw a quiet, pretty stretch of river, the banks overhung by low trees and shrubs, and no buildings in sight. Here the bridge forms a feature in a village street, yet it is just as appropriate and just as charming. Of course were these simple but solid stone houses replaced by wooden ones of the usual American type there would be less harmony and less dignity in the picture. But, at least in our older villages, the wooden houses stand beneath great Elms and Maples, which give beauty of a different kind; and in a street thus composed a stone bridge would be an equally fortunate detail. The thick growth of Ivy that covers the sides of the Welsh structure could not everywhere be reproduced in our colder, drier climate; but we have enough vines of our own to clothe bridge or river wall most beautifully, during the summer season at least. And even in their winter nakedness they would still be attractive, while the cheap bridge of wood or iron is hideous when naked, and only tolerable even when draped with green.

The Trees of Persia.

No country, within the same limits, presents such vivid contrasts of scenery and vegetation as Persia. There are wide districts which have all the characteristics of the Desert of Sahara, while only a day's ride from there one climbs stupendous mountain ranges or plunges into the depths of forests where the sun is hardly seen and the music of the cataract reverberates through a primeval solitude. The centre and south of Persia is a vast arid table-land from 3,000 to 4,000 feet above the sea. Here and there it is intersected by mountain chains many thousand feet high, covered with perpetual snow. The melting of this snow furnishes the water which,

by laborious irrigation, causes vegetation to prosper around the cities or in artificial oases. Naturally, there are no forests on this plateau, and the large province of Khorassan, some 60,000 square miles in extent, is chiefly a salt-sand desert, having water only at long intervals. This district is supposed to have been the bed of a sea like the Caspian, which gradually evaporated, as the Caspian is now doing.

On this plateau Poplars, Mulberries, Walnut-trees and almost every variety of fruit-trees can be made to flourish by irrigation; but evergreens, like the Pine, do not seem to take kindly to the soil or the climate. The Peach is indigenous to this region; the Fig grows well, although inferior to that of Asia Minor. The Quince of Ispahan is famous; its flavor and fragrance are unsurpassed. The Pomegranate is also a favorite tree of the Persian plateau. But all these trees are there dependent on irrigation. Stop that, and the spirit of the desert, in a very short time, resumes its sway.

But the most remarkable vegetable phenomenon of the Persian plateau is the Chevar or Plane-tree, called with us the Buttonwood-tree or Sycamore. Every Persian garden has some of these trees. They are planted in rows near together and trimmed high up so as to produce a lofty shaft. A double purpose is served by this process—shaded avenues are obtained and timbers for roofing the dwellings of adobe. The scarcity of timber in Persia renders this a most important object. Plane-trees and Poplars are one of the most valuable sources of revenue to a Persian proprietor. The avenue of these trees extending from Teheran to the villages of the Shimrân, where the wealthy resort in the warm season, a distance of some eight miles, form an appanage of the chief wife of the Shah, who makes quite a revenue from the annual product of this timber. But the Plane-tree in this form is the result of cultivation. It is in its natural state, as it grows without the intervention of man, that it chiefly concerns us here. The Sycamore is reputed by tradition to have been the tree cursed by the Saviour for its barrenness. In the remotest times legends clustered about it, especially among the Persians. Alexander the Great, on his march to Hyrcania, is said to have come across a pair of Plane-trees in the north of Persia—one male, the other female—which, in a mysterious conversation, foretold his destiny and his doom. Marco Polo has much to say of this tree in speaking of Persia; and it is very remarkable that he generally writes of that country as the Arbre See and the Arbre Sol, thereby indicating what a prominent feature of the Persian landscape and vegetation the Plane-tree was in those days, in so much that it gave a name to the country.

The Platanus is indeed a most eccentric and extraordinary tree, as one sees it in Persia. It enjoys water courses and shady valleys, and it grows in the desert far from water with equal satisfaction apparently and with equal grandeur. It is by far the noblest tree of central and western Asia in its form and dimensions. The Plane-tree under which Godfrey of Bouillon encamped by the Bosphorus is still standing, a most venerable and gigantic patriarch. Not many years ago a similar tree was standing in Asia Minor which was reputed to be the tree which Xerxes decorated on his way to Greece.

The market-place in the Persian villages, where the streams rush down from the mountains, are always shaded by one or more vast Chevars, under which the peasant rests at noonday, the cobbler plies his awl, the itinerant musician or physician soothes the rustic mind or body, and the children and the dogs romp and sleep in idle groups. The mosque courtyards in the cities are ever canopied by the spreading boughs of the Plane-tree, and one almost feels that this is indeed a tree which seeks and thrives especially in the society of man, and that abundant water is one of the essentials of its development.

But go forth from the habitations of man, and far from the springs of water, where the soil is yellow sand or pumice-stone, ejected ages ago from the vast crater of Demavend, where there is no herbage, or, at most, only the cynical Thistle; where even birds are few, and these chiefly the eagle and the vulture soaring far up in the blue dome that rains heat over the wastes that quiver with mirage, and which is swept over by whirling columns of dust, and you find the Chevar flourishing there.

I remember a most noble old Plane-tree at Gelandevêk, standing by a tank where the Shah's pavilion is pitched when he hunts in that district. Fruit-trees and Melon-fields and rivulets, and a village hidden in foliage, were all about us, and the old tree, still green in its old age, was evidently in congenial company. But from the door of my tent I could look on the yellow and arid side of a great hill, on which the sun pitilessly rained heat. Near the top of the slope stood a large and solitary Plane-tree, the only green thing on the hill. Its leaves were as abundant and fresh as those of its rival, whose roots rested among the "rivers of waters."

Turning from the central plateau to the south we find the chief feature in the arboreal vegetation of Persia to be the Date Palm, which grows in the neighborhood of the Persian Gulf in such abundance that dates form one of the most important articles of export from the country. On the other hand, in the south-west, in the region bordering on Turkey, extensive forests of dwarf Oak are found, the only examples of the Oak in Persia.

If we turn north again from the central waste lands of Persia we find ourselves confronted by the tremendous ranges of the Elborz, practically a continuation of the Hindoo Kush, extending from Turkistan to Armenia. In Persia it has an average elevation of 9,000 feet, rising to 13,000 feet between Teheran and the Caspian, while the peak of Demavend, forty miles from the capital, is no less than 21,000 feet high, the loftiest mountain between the Himalayas and the Andes. South of the Elborz range stretches the great arid table-land. But when one reaches the top of the ridge he enters with great suddenness, and without warning, upon an altogether different scene. The north side of the mountains faces the Caspian Sea, and condenses the moisture deposited by the clouds driven by the breezes of an inland sea 800 miles long. Here one finds "a land of streams." Everywhere cascades leap down the mountain sides. The roads are often by the side of deep and turbid rivers or carried over them by stone bridges of the most massive character. A piercing wind rushes through the gorges, so violent at some points as to blow men, and even mules, into the rivers. What is yet more remarkable, almost immediately after beginning the northern descent, the traveler enters the gloom of the densest forests in the world. The sun umbrella is laid aside, and whereas the roads were thick with fine white dust, they are now often muddy and traversed by chattering brooks.

The forests, league after league, are Walnut, and here and there Chestnut. The vastness and density of these Walnut forests is extraordinary. They reach almost from the ridge to the sea, a distance of seventy or eighty miles, and east and west over 200 miles, along the rich alluvial strip which borders the Caspian.

In the heart of these forests the mouldering ruins of old castles and towns are still to be seen of which the very name is forgotten, and the tiger, the panther, the wild boar and the wolf roam through the underwood unmolested. Curious wandering tribes also dwell there, doubtless descendants of the legendary White Dios encountered and conquered by Rustem in the glimmering dawn of history.

The glades in these forests are of magical beauty; one may easily imagine himself to be in the realms of the Fairy Queen when at noonday he comes to one of these delicious openings and lunches on a rich green sward, where the air is musical with streams and an abattis of huge massy fallen trunks seems to protect one from the dark ranks of the surrounding forests. One of the most singular features of these forests is the frequent appearance of the Pomegranate growing wild. Its bright green, glossy leaf contrasts vividly with the darker foliage around it, while the exquisite orange-scarlet of the blossoms shines in the emerald gloom like sparks of flame. At intervals, grandly picturesque forests of Olive are seen, chiefly on the river banks; the Elm and the Box also grow there in considerable abundance, and the Poplar is common. But the chief feature of the great forests of northern Persia is, after all, the Walnut. Deciduous trees alone compose that wilderness of woods. On the plain near the Caspian, however, Cypresses are sometimes seen, chiefly near the towns, evidently the result of cultivation. It is worth remarking that the northern side of the Elborz reeks with malaria, and dangerous fever lurks in the jungle along the Caspian, while the arid central plateau of Persia is one of the healthiest regions on the globe.

New York. *S. G. W. Benjamin.*

The Water Supply of Southern California.

CALIFORNIANS are now discussing the forests, swamp-lands and possible reservoirs of the southern Sierras. A very interesting interview was recently held with Mr. S. C. Lillis, of Kern County, the manager of the famous Laguna de Taché ranch. He holds that the proper irrigation system for the San Joaquin Valley is based upon two things—the preservation of the forests and the utilization of the natural reservoir sites. He says that many sheep men have been permitted to obtain rights to the natural pastures of the high Sierras under an incorrect interpretation of the Swamp-land Act. These tracts are situated above the five-thousand-foot level, and are unfit

for agriculture. They are now cut and pastured so closely as to destroy many springs and streams. All the lands above five thousand feet of altitude should be kept for timber and mining, withdrawn from sale and protected.

Mr. Lillis says that for six years he has traveled over the mountains of three counties, a territory as large as Massachusetts, and has seldom been able to find trees of less than twenty years' growth. This shows that the sheep have destroyed all the young timber, and that it has not been permitted to grow. He found that in the high Kern districts, from 8,000 to 12,000 feet above the sea, one-third of the standing timber was dead. Last July and August he was never out of sight of eight or ten forest-fires, and sometimes counted more than twenty. He continues:

"I have asked sheep men for the reasons for so many fires, and they have answered that they did not want their sheep obstructed in their movements by timber and brush, and that they proposed to burn it off. The needles or leaves of the Pine-trees on the Kern and Kings Rivers are removed from the roots of the trees by the sheep, and they are exposed to the frosts of winter and the heat of summer. The frequency of the fires destroys the outer bark, and finally the tree dies. Then the fires catch in the resin of other trees and burn them, leaving the mountains as bare as a desert."

The old settlers in the Sierra region say that an enormous amount of water can be easily and cheaply impounded there. The present system is to construct expensive dams in the cañons near the valley. The proper places for reservoirs are on the high levels in chains of small lakes, and "flats" where the outlet can be raised at a slight expense. There are said to be hundreds of places at the heads of the Sierra rivers that are adapted for water storage. About these natural and artificial lakes the native timber should be allowed to grow, and the sheep pasturage and annual burning of the forest should be prevented. This is the most simple, effective and least costly system that has been proposed, and all the old mountaineers favor it.

Niles, Cal. *Charles H. Shinn.*

New or Little Known Plants.

Phœnix Rœbelenii.*

THIS new and distinctly marked species of Phœnix was introduced into England about a year ago by M. Rœbelen, of Singapore, who forwarded plants of it to a London auctioneer, from whom they were all purchased by Messrs. F. Sander & Co., of St. Albans, except the plant here figured, which is in the Kew collection. It is by far the smallest of all the many kinds of Phœnix known, and is also exceptional in the form of its stem and in the elegance and soft texture of its bright green leaves. According to M. Rœbelen it is a native of the Laos States, Siam. "It grows in great abundance along the rocky banks of the majestic river Mekong, as far north as twenty-two degrees latitude, and where the temperature descends to forty-one degrees Fahrenheit in the months of December and January. Although I looked very eagerly for seeds and flowers, I could discover none, but was told by the natives that monkeys and wildcats are very fond of the small berries, and carry them to their hiding places, where I really could discover thousands of seedlings. The stems of this exceedingly graceful pigmy Palm never attain to more than about two feet in height, and the plant generally grows in large clumps. In the Singapore Botanic Garden there exists a small example of a Palm without a stem, and resembling my Palm very much in color and shape of the leaves, labeled *Phœnix farinosa*, and of unknown origin. Whether it is the same, or a nearly allied species, I cannot say, but doubt it very much, as *P. Rœbelenii* was unknown to the natives, but was much admired by those Laos living further south of the town of Luang Phrabang."

In the Kew herbarium there is a specimen of a Phœnix collected in 1848 by Sir Joseph Hooker in Sikkim at an altitude of 4,000 feet, and which is very similar to *P. Rœbelenii* in every character except in its being stemless although in flower.

The plant here figured (see page 273) has two stems, the longer of which is sixteen inches in length by one and a half inches in diameter. The leaves are a foot long, and the pinnæ, which are not quite regular in their arrangement along the rachis, are from five to seven inches long, shining dark green, soft in texture and curved, and not at all spinous at the tips.

Beccari in his recently published monograph of the genus Phœnix refers *P. Rœbelenii* to *P. humilis*, var. *Lourieri*, which he describes as having very glaucescent fronds from two and a half to three and a half feet in length. He also includes under *P. humilis* such widely different plants as *P. pedunculata*, *P. Hanceana* and *P. pusilla*. However much the needs of botany may justify this lumping arrangement, it is worse than useless for horticulture. Indeed, I believe that if Professor Beccari could see living plants of *P. Rœbelenii* he would almost certainly feel compelled to alter his views with respect to its botanical position.

At Kew we have all the cultivated species and most marked varieties of Phœnix represented by living plants, but we have nothing that comes anywhere near to *P. Rœbelenii*.

From its habit of pushing up suckers freely, this Palm is likely to become soon plentiful in gardens; its abundance in a wild state, as described by Rœbelen, is also likely to be turned to account by collectors.

It is one of the prettiest of the many Palms cultivated at Kew, deserving to be placed in the same category with *Cocos Weddelliana* and *Geonoma gracilis*, so useful when small as decorative plants.

Kew. *W. Watson.*

*O'Brien in *Gardeners' Chronicle*, 1889, vi., 475.—Rœbelen, idem, 758.—Beccari in *Malesia*, iii., 382.

Foreign Correspondence.

London Letter.

THE meeting of the Royal Horticultural Society on May 13th was a most successful one, the exhibits being numerous and exceptionally interesting. The authorities had invited exhibitors to send specimens of such flowering trees and shrubs as bloom in the open air in England at this time, and the occasion was in fact an "Arbor Day." The vast number of beautiful hardy spring flowering shrubs now in cultivation and made available for every one by the energy of nurserymen was abundantly set forth. Many gardeners were surprised to find how much richer the shrubbery and park might be made by a liberal use of hosts of beautiful flowering plants which till now were unknown to them.

There are evidences of a revival of interest in this department of gardening. Evergreens, and especially conifers, have perhaps been over-planted in the making of English gardens, the effect being much heavier and more monotonous than is desirable in a garden—an effect more properly associated with the churchyard and cemetery. The niggardliness with which good flowering hardy trees and shrubs have been and are even now employed in the composition of the out-door garden was commented upon at the meeting by Mr. W. Goldring, who had been invited by the Society to read a paper on the subject of "Spring Flowering Trees and Shrubs." He recommended gardeners and others interested to pay frequent visits to such collections as that at Kew and to the nurseries where these plants are specially grown, and to note for themselves the plants which might be employed for effect, as well as what to avoid. That such a course was desirable was proved by the plants exhibited at the meeting. Kew alone sent flowering branches of over 180 species, whilst from Messrs. Veitch and G. Paul there were collections of beautiful and interesting plants. Amongst those sent from Kew the following were the most attractive:

Amelanchier Asiatica, *A. Botryapium*, *A. Canadensis*, *A. vulgaris*, *Azalea amœna* (hardy in the neighborhood of London), *Berberis Darwinii*, *B. empetrifolia*, *B. stenophylla*, *Prunus avium* varieties, *P. chrysocarpa*, *P. oxycarpa*, *P. Mahaleb* varieties, *P. pumila*, *Cercis Siliquastrum*, *Choisya ternata*, *Cotoneaster horizontalis*; Cratægus of many kinds; *Cytisus albus*, now magnificent at Kew; *C. scoparius*, var. *Andreanus*, *Exochorda grandiflora*, *Genista Hispanica*, *Kalmia glauca*, a delightful little plant with rosy red clusters of flowers; *Ledum palustre* and *L. latifolium*, both ornamental and free flowering; *Leiophyllum buxifolium*, the Sand Myrtle of New Jersey; Magnolias of sorts; *Olearia stellulata*, a delightful little shrub with small leaves and clusters of white Aster-like flowers; *Piptanthus Nepalensis*, the Himalayan Laburnum; *Prunus depressa*, *P. pumila*, *P. triloba*, *Pyrus Maulei*, varieties; *P. Ringo*,

P. Sorbus hybrida, *P. spectabilis*, one of the best of ornamental flowered Pears; *Rhododendron Kewense*, *R. glaucum*; Ribes of sorts; *Rubus deliciosus* and *R. spectabilis*, both represented by large shrubs on the lawns at Kew, and at present thickly laden with large pure white flowers like single Roses; Lilacs of many varieties; Vacciniums, *Viburnum cotinifolium* and *V. plicatum*.

Fig. 40.—Phœnix Rœbelenii.—See page 272.

Unquestionably, the most interesting and attractive plant exhibited was the new *Genista Andreana* of Continental gardens, the correct name of which is, however, *Cytisus scoparius*, var. *Andreanus*. It is simply a color variety of our native Yellow Broom or "Planta Genista." The colored drawing of it, which was published in the *Revue Horticole* last year, does not do the plant justice. The bright yellow of the standard and keel of the flowers and the rich velvety maroon of the wings are most effective. The plant cannot fail to win universal admiration. It is as easy to cultivate as the type, and it flowers when only a foot high. At present it is grafted on stocks of Laburnum, but at Kew it is successfully worked on the common Broom. Another name by which this new variety is known is *Genista bicolor*. It was distributed last spring from the nursery of Croux & Fils, near Paris.

Amongst the plants exhibited by the Messrs. Veitch were the rosy flowered *Ledum buxifolium*, *Cydonia Japonica*, var. *Moërloosii*, remarkable for the rich, clear red color of its flowers; *Enkianthus campanulatus*, a new introduction from Japan, not unlike *Andromeda Japonica*, but with flowers bell-shaped, rose colored and conspicuously veined, and *Cytisus scoparius*

Andreanus. The same firm also exhibited *Picea excelsa mutabilis*, remarkable for the bright yellow of its pendent young growth, and *Juniperus Canadensis aurea*, the nut-like buds colored yellow. Mr. Paul showed the white flowered variety of *Cydonia Japonica*, *Pieris* (*Andromeda*) *formosa*, a pretty flowered shrub, with panicles of white Lily-of-the-Valley-like flowers; *Prunus Sieboldii*, one of the prettiest of spring-flowering small trees, the rich crimson of the buds and rosy white of the expanded flowers being most ornamental. At Kew this plant, when in flower, is greatly admired; the European *Daphne Cneorum*, a gem amongst Daphnes, most useful for beds or as a marginal plant to borders; it is compact in habit, and produces pretty little umbels of rosy red flowers, not unlike those of a Pimelia, on the ends of the branches.

A garden tastefully planted with the best of the trees and shrubs shown at this meeting would be a perfect paradise in May.

Other plants shown at the meeting were a grand collection of *Pæonia Moutan*, from Messrs. Kelway & Son. Notable amongst them were Fascinatus, an enormous flower, colored pale lavender, splashed at the base of the petals with purple; M. S. Low, large, rich satin rose; Beatrice, a single flowered variety, eight inches across the cup, pure white with yellow stamens and a purple stigma. This is the most beautiful of all singled flowered Moutans. Caroline d'Italie is another grand variety, the flowers being large and cream colored, flushed with rose.

Calla Elliottiana is a very handsome yellow flowered variety or species near to *C. hastata* or *C. maculata*, the flower being almost as large as that of *C. Æthiopica*, but colored bright canary-yellow. It is said to have come amongst some tubers of various kinds of Calla imported from the Cape. Seedlings of it have been raised, but they have not yet flowered. This plant shared with the Cytisus the place of honor amongst the new plants shown. If it proves as easy to cultivate and as prolific in flowers as the old Nile Lily it will be of immense value as a decorative plant.

Amongst the Orchids the most interesting plants were *Odontoglossum crispum virginale*, with flowers four inches across and pure white save a tinge of pale yellow on the lip; *Cattleya Warocqueana*, a variety of *C. Warneri; Dendrobium Gallicea-mum*, a pale-lipped, loose-flowered variety of *D. thyrsiflorum* and *Disa tripetaloides*. This last is now flowering at Kew. It has the habit of *D. racemosa*, but is smaller in stature, and the flowers are white, spotted with purple; the spike is fifteen inches high and bears nine flowers. It is an interesting and pretty little Disa, and whilst falling a long way behind *D. grandiflora* and *D. racemosa* as a decorative plant it is nevertheless worth a place amongst cool-house Orchids. Apparently it is as easy to manage as the other two.

Cypripedium caudatum is variable both in the size and color of its flowers. The finest I have seen came this week from the Glasnevin Botanic Gardens. The length of the tails was thirty-five inches, of each sepal seven inches and of the pouch three inches, the width of the latter being nearly one and one-half inches. The colors, too, were much superior to what one commonly sees in this species.

Catasetum Bungerothii, var. *pileatum*. A figure of this grand Catasetum recently published in Sander's *Reichenbachia*, is accompanied by some observations to the effect that the name Bungerothii, given to this plant by Mr. N. G. Brown in 1886, must be superseded by that of *C. pileatum*, which Reichenbach had applied to the same plant some years before. I believe there is every reason for assuming that Reichenbach did do this, in fact he told me himself soon after Mr. Brown's description of *C. Bungerothii* was published that he had already named the same plant.

Kew. *W. Watson.*

Cultural Department.

Notes on American Plants.

THE first to bloom of our Butterfly Tulips is the little *Calochortus cæruleus* from California. It grows only about six inches high, bearing in not very long succession several white flowers with a purplish centre, three-quarters of an inch wide, with hairy bristles inside. It is quite pretty, but the flower stems are too short for cutting. Only two or three days later comes *C. Benthami*, a plant of about the same size with bright yellow flowers, a fitting companion to the first. Our plants of both were protected from the frost by a covering of leaves.

Sedum ternatum, one of the Stone Crops, is valuable in parts of the rockery. It likes shade, yet in a light soil it will thrive in open sunlight. It grows about as high as *Phlox subulata*, and like it forms dense beds so thick that nothing else can live with it. Its dense, light green foliage is pretty, and when the small white flowers appear, which are borne on three-spiked cymes, with the spikes almost horizontal and the flowers on the upper side, the beds are quite showy.

Many persons who are familiar with the common Chickweed (*Stellaria media*), which is a noxious weed in many gardens, may hardly believe that its near relative, the Great Chickweed, *S. pubera*, can have any value as a garden plant, yet for a shady situation at its time of blooming there are few prettier plants. It forms thick clumps a foot high and more than a foot wide. All over these clumps, as thickly set as can be, are the pretty white flowers, half an inch wide, sprinkled with their reddish brown stamens. It is not inclined to spread with us, at least like *S. media*, but seems to require no special care when once established.

The Wild Hyacinth (*Camassia Fraseri*) comes from a bulbous root with long, grass-like leaves, and bearing a long, naked stem with a spike of pale blue flowers at the summit. The flowers are more than half an inch wide and the spike three inches long by nearly an inch thick. The plant is perfectly hardy, easy of culture and well worth growing.

Iris verna, now in bloom, a little later than *I. cristata*, has pretty blue and yellow flowers, but with us it lacks the bright fresh green foliage which seems as necessary as the flowers for an Iris. This may come on later, but at this season, just as the flowers open, it makes a shabby appearance by the side of a bed of *I. cristata*, planted at the same time.

Allium madidum, from the Pacific coast, grows only about six inches high and bears a small, close umbel of pretty light pink flowers. It needs protection in winter.

The Greek Valerian, *Polemonium reptans*, is a pretty plant growing over a foot high in cultivation, with an abundance of light blue flowers half an inch wide. It is easy of culture and thrives in either sun or shade.

Saxifraga Mertensiana is a small species from Oregon, six to eight inches high, with a low cyme of small white flowers a quarter of an inch wide. The little round, scalloped leaf is its principal feature of interest. These are nearly an inch wide, thick, and lie close to the ground. Our plants were protected with a thin covering of leaves last winter. Whether this would be necessary in any ordinary season or not we have yet to learn.

Smilacina stellata, one of the False Solomon's Seals, is a plant of the Lily family, not uncommon on moist banks, with short panicles of pretty white flowers and rich light green leaves. It is also a pretty plant when in fruit, and might be useful in bouquets at both the flowering and fruiting season. It likes moist, gravelly soil and should be planted in the shade unless such a situation can be given it.

The Arrow-leaved Violet (*V. sagittata*) is not generally so large a plant as *V. pedata* or Bird's-foot Violet, but it grows with it in similar situations and is a pretty species. The blue flowers have a purplish tinge which is not usually seen in the common *V. cuculata*. It likes a fine, loamy soil.

Southwick, Mass. *F. H. Horsford.*

Notes on Shrubs.

IT is not an uncommon fault with the accounts of new flowering or fruiting plants which dealers offer to the public, that the descriptions are so rose-colored and alluring as to lead the unsuspecting buyer to make many an expensive purchase which he is almost certain to regret when he discovers that his new acquisition is after all no better than some old kind which he already possessed. Such experiences finally lead people to become distrustful of all the laudatory descriptions in trade catalogues. *Rhododendron* (*Azalea*) *Vaseyi* (figured in Garden and Forest, vol. i, p. 377), from North Carolina, has, during the last year or two, received a good share of praise from all who have tried it, and in this case, at least, everything said seems to be well deserved. Without any artificial protection, and exposed to the sun and to all winds, it has not been injured in the slightest degree at the Arnold Arboretum. It has withstood the test of a variety of winters, and in vigor and hardiness has proved itself fully the equal of its more northern congeners. With the exception of a few unsatisfactory and half hardy precocious flowering foreign Rhododendrons whose flower-buds rarely survive our winters, and of our native Rhodora, *R. Vaseyi* is the earliest of the genus to bloom. In an unsheltered situation the first flowers opened about May 15th (three days earlier in 1889) and the finest development of efflorescence was reached within a week. The interval between the opening of the first and fading of the last flowers in any individual plant is ordinarily about two weeks, but sometimes several days longer. At fullest bloom the plants are quite destitute of foliage, but the large, thin leaves appear as the pretty pink corollas begin to fall. Seed is freely

produced on plants in northern gardens, and young seedlings, when well started, make a vigorous and even rapid growth.

The Rhodora may bloom a few days earlier than *R. Vaseyi*, and it lasts for about the same length of time. Although normally rosy purple, the color of the flowers on some plants is much paler and even occasionally almost white, a circumstance which has not yet received much attention from propagators. Except when in flower the Rhodora cannot be called an ornamental shrub, but it grows well in the partial shade of other shrubs or of trees in any good garden soil, and is not so difficult to transplant as its rarity in cultivation might indicate. When the full grown plants are collected in their native habitat they should be lifted in clumps with as much of the adhering soil as possible. When such care is taken the plants will continue to grow without interruption even when transferred to a much drier soil than that to which they had been accustomed.

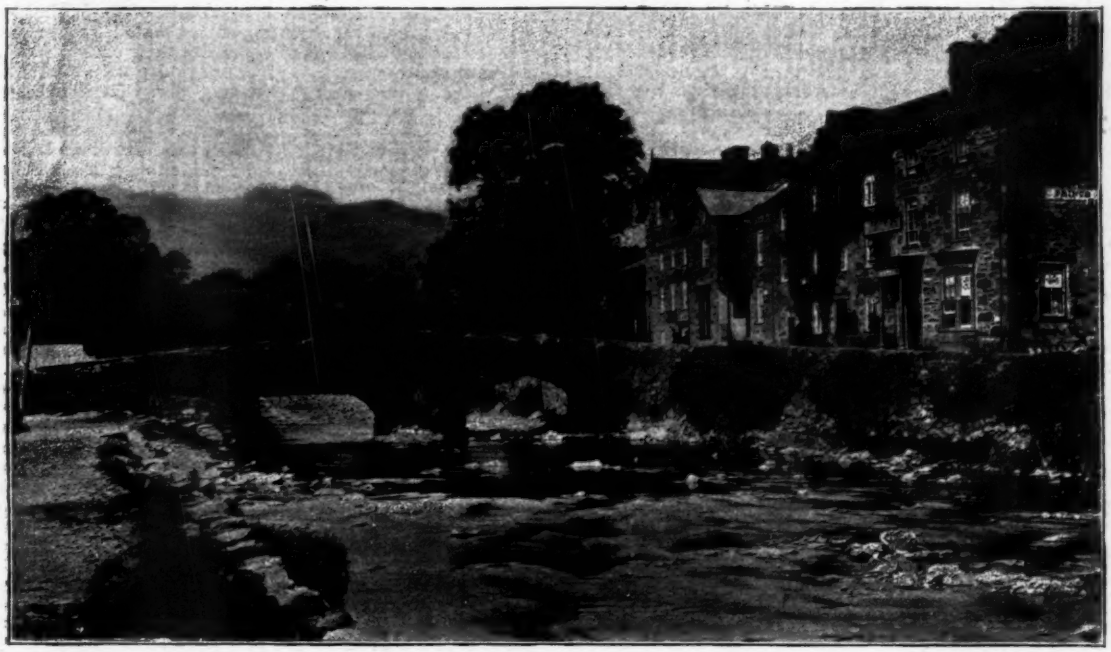
Few people seem to know that there is a native species of Laurel which in cultivation blossoms with the Rhodora, but continues in bloom somewhat later. This is the so-called Pale Laurel (*Kalmia glauca*), whose first flowers expand three weeks before those of the Sheep Laurel (*K. angustifolia*) or the Mountain Laurel (*K. latifolia*) when growing side by side. It is a straggling little plant from one to two feet high, with small narrow leaves, which are shining dark green above and white beneath. The flowers are about half an inch broad and usually lilac-purple in color, but, like the Rhodora, the color of the corollas of some plants is found to vary, and be either darker or much lighter than the type.

The Sand Myrtle (*Leiophyllum buxifolium*) is a pretty, diminutive, dark evergreen shrub, also of the Heath family, which only grows from six inches to a foot, or a little more, in height. At Boston it comes into full bloom about the third week in May. The flowers are borne in terminal umbel-like clusters, and are usually so abundant as to completely cover the plant. The unopened buds are pinkish, the flowers very small and white, but the red anthers give them all a pink effect. The white flowers of the Labrador Tea (*Ledum latifolium*) open a few days after those of the Sand Myrtle, and although appearing at a time when white flowers are abundant, they possess a peculiar charm and individuality which is so characteristic of almost every flower in the *Ericaceæ*. The Sand Myrtle is a native of the sandy Pine-barren districts in New Jersey and other more southern localities, while the Labrador Tea inhabits regions much further north; but once well established, both thrive in Massachusetts when given the same conditions as to Rhododendrons.

Wherever *Daphne Cneorum* becomes known it is admired and appreciated for its compact little clusters of strongly fragrant, pinkish red flowers. In unsheltered spots these appear about the first of May, reaching fullest development and abundance in about two weeks, after which they gradually diminish in number, although good sprays of blossom may be collected up to the first week in June. Again, in July and August or later, a second, though very scattering, crop of flowers is produced among the evergreen foliage. Though sometimes subject to injury in winter, these plants well repay the slight protection necessary to secure an abundance of bloom.

Daphne Genkwa, a Japanese species, has an entirely different aspect from *D. Cneorum* when in bloom. The lilac-blue tubular flowers appear in little clusters along the branches, which are entirely free from leaves during the first ten days of blossoming. The flowers are sometimes described as fragrant, but in specimens at the Arboretum the odor is very faint and delicate when compared with that of *D. Cneorum*. Each year's experience shows that this Japanese species is quite as hardy as *D. Cneorum*, but both are of slow growth. Although the flowers of these Daphnes are showy and fragrant, they seem to be rarely visited by insects, and I have never known the plants about Boston to bear fruit. Two other species, however, *D. Mezereum* and *D. alpina*, of European origin, ripen seed in considerable abundance.

Arnold Arboretum. *J. G. Jack.*



A Stone Bridge in Wales.—See page 270.

Originating New Peas.

IT was long thought that natural or insect cross-fertilization of the Pea was practically impossible, but Mr. Laxton, who is known as the originator of some fifty varieties, now thinks that minute insects which appear to feed on the pollen before the flower opens do, in many cases, carry it from flower to flower. The presence of "rogues" or irregular plants is sometimes due to this agency. Great improvements have been made in Peas in point of earliness, size, productiveness, quality and dwarfness of growth. But for various reasons there is a constant tendency to revert to the old form and lose the advantages gained. This makes the continuous production of new varieties necessary in order to counteract this retrograde tendency. How new forms are originated by cross-fertilization was explained by Mr. Laxton at the famous vegetable conference held at Chiswick last autumn in the following passage taken from the report in the journal of the Royal Horticultural Society:

"Natural fertilization usually takes place in the flower of the Pea before expansion, and, therefore, in order to secure a successful cross, the operator must let his work precede this, and it will be necessary to operate two or three days prior to the opening of the flower, and when the incipient blossom is

about one-third its mature size. This is done by carefully slitting up with a scissors' point the front of the keel petal and removing the anthers before the pollen is shed, for should this have taken place in the slightest degree it will be well to abandon the operation and recommence on another flower. The foreign pollen of the desired variety can then be applied through the opening made in the keel of the flower to be fertilized, either from a camel's-hair pencil or by direct application of the ripened pollen-bearing anthers to the upper edge of the carpel. This is best accomplished by an easily acquired movement of the thumb and finger of the right hand holding the pollen-bearing flower, the keel of which, with its point inserted in the opening made in that of the flower to be operated upon, may be drawn back over the anthers, and the pollen will be delivered by a jerk or spring into the desired position. I rarely use a camel's-hair pencil in cross-fertilization, as it brings considerable risk of introducing other pollen or undesirable foreign matter in combination with the pollen to be used. After the operation has been performed, it will be desirable to pinch out the crown and all the flowers and pods on the plant except those cross-fertilized. If in conducting the operation care has been taken not to injure the organs of fructification, and these are in ripe condition, and sufficient pollen has been applied, the pod, if the weather be not too wet or moist, will probably set, and in due course ripen its complement of seeds.

"By means, however, of cross-fertilization alone, and unless it be followed by careful and continued selection, the labors of the cross-breeder, instead of benefiting the gardener, may lead to utter confusion, because, as I have previously stated, the Pea, under ordinary conditions, is much given to sporting and reversion, for when two dissimilar old or fixed varieties have been cross-fertilized, three or four generations at least must, under the most favorable circumstances, elapse before the progeny will become fixed or settled; and from one such cross I have no doubt that, by sowing every individual Pea produced during the three or four generations, hundreds of different varieties may be obtained; but, as might be expected, I have found that where the two varieties desired to be intercrossed are unfixed, confusion will be confounded, and the variations continue through many generations, the number at length being utterly incalculable. We must, therefore, still largely look to selection as the final means of obtaining permanent improvements in the Pea, and I fear the results of the recent work of Pea-crossers can hardly be fully appreciated for some years to come, during which their labors must be carefully followed by those of the seed-grower."

Notes on Vegetables.

TO-DAY (May 17th) we saw the first snap beans in Raleigh. They were of the Mohawk variety, and while the Mohawk is not so early as some other and better beans, if both have warm weather to grow in, yet the Mohawk makes its appearance first because it is better able to withstand the unfavorable weather and light frosts we have in April. So the market-growers find they cannot dispense with it. The earliest Valentines are close behind, but a difference of a few days or a week at this season of the year in a crop so easily grown as Bush Beans means all the difference between profit and loss on the crop.

If all the claims of the seedsmen in regard to new Tomatoes were true we ought to have a variety by this time which we could ripen here early in May, while the fact is that with every convenience for forwarding the crop the first week in June is as early as any can be had. There has been little or no advance in the earliness of Tomatoes in the past twenty-five years, and it may be regarded as settled that in the matter of earliness we have reached the limit. Much improvement can probably yet be made in tomatoes in the way of combining size and solidity with smoothness and earliness. In some of the recent extra early sorts there has been a retrogression in this particular, and the growers have sacrificed vigor of plant for earliness. Dwarf Champion has plenty of vigor though of compact growth. With us it has always been among the earliest, but it lacks quality for the family garden and is better fitted for shipping on account of its tough skin. We have forty varieties now fruiting.

Henderson's Succession Cabbage promises to be a very close successor to the Early Summer, and being of larger size will come in at a very good season for a summer Cabbage. But it must prove good indeed if it supersedes Fottler's Improved Brunswick in this. What we want here in the south is a Cabbage that can be safely carried through late summer and be reliable for heading in autumn and winter. The difficulty in this has led to the almost universal use of the Collard, which by the by is no mean vegetable after frost has made it tender. The practice of calling any Cabbage that has failed to head a Collard has given this vegetable a bad name with those who have never tasted a real Georgia Collard. The difficulty in raising the plants in hot summer weather is one of the greatest obstacles to the raising of winter Cabbage here, and it seems to me that growers at the north or in the mountains might make a good thing by supplying the low country with plants for setting in August and September.

Since southern growers have found out that the best Potatoes for winter use and the best seed for spring planting are grown here from seed of the early crop planted in August, there has been a large development in this line, and it will not be long before the south will grow its own supply of winter Potatoes, and be able to supply unsprouted potatoes north late in spring. We will always have to buy enough of northern grown seed potatoes in spring to raise our late seed from, for I do not think the process can be carried profitably beyond one season. Formerly there was difficulty in getting the potatoes to grow which were planted in the heat of summer. This arose from the universal impression that they should be planted deep at that season, while the fact is they should be barely covered in the soil and heavily rolled. Planted thus all will grow and the soil is plowed toward them as they advance. Last fall we dug potatoes on the sixth of December which did not appear above the ground until after the middle of September, and the crop was much better than those planted late in July and which had the whole hot weather for their early growth. Late autumn is almost sure to give us good potato weather, while August is apt to be too hot and dry. Therefore potatoes planted from middle to last of August will generally surpass those planted earlier. This late crop of potatoes we consider to be one of remarkable interest to the south and at our station a series of plantings will be made this year with a view to test the best time for planting.

North Carolina College of Agriculture, Raleigh. *W. F. Massey.*

Cypripedium barbatum.—This species belongs to that beautiful group of "Ladies' Slippers" characterized by their marbled foliage. It forms one of the most attractive sights in the Orchid houses during May and June, during which time the beauty of the foliage and flowers is, as it were, combined. The leaves are about six inches in length, oblong-lanceolate, pale green, with darker green oblong bars marbling the upper surface. The dark purple hairy scapes are about a foot high, and usually bear one, though not infrequently two large and handsomely colored flowers, the roundish upper sepal of which forms the chief attraction. It is white above, green at the base and vertically marked with broad, dark purple stripes, while across the centre there usually extends a more or less conspicuous crescent-shaped zone of vinous purple, the richness of which distinguishes a good variety from a bad one. The margins of the linear-oblong, slightly depressed petals are thickly fringed with dark, shining hairs, a circumstance which led Dr. Lindley to apply the specific name—although one, nowadays, just as applicable to several other species, which, however, were unknown when *C. barbatum* was christened. The surface of the petals is green at the base, passing into deep purple toward the tips, while the upper margin (and sometimes the lower also) is adorned with a row of blackish shining warts. Dark purple is the color of the helmet-shaped lip, except on the pale inflexed side lobes, which are studded with small dull purple warts.

Great variation exists in the size and color of the flowers of *C. barbatum*—or, as it may be popularly termed, the bearded "Lady's Slipper"—and this fact has given rise to a host of unauthorized fancy names, which are to be found in most trade catalogues. This variation, of course, is caused chiefly by cultivation and is of like consequence in the naming. One variety, however—that known as Crossi or Warneri—is worthy of distinction, and is recognized by its paler and more densely growing foliage, and by its flowers being of an exceptionally rich color. Of course, such a plant as *C. barbatum* could not escape the toils of the artificial hybridist, whose operations with it in combination with other species have resulted in such fine hybrids as *C. Harrisianum* (the first artificial Cypripedium raised), *C. euryandrum*, *C. selligerum*, *C. vexillarium* and others.

It has been almost half a century in cultivation, having been introduced from Mount Ophir, near Malacca, about 1840, by Cuming, who sent plants to Messrs. Loddiges, of Hackney, in whose nursery the first flowers appeared. Since that time it has been looked upon as a very useful plant, both for decorative and exhibition purposes, and a great improvement in the

size and color of the flowers has taken place under cultivation, as will be readily seen by comparing blooms of to-day with those figured in the *Botanical Register* in 1842. The best means of producing an effect with *C. barbatum* is to grow several plants together in broad, well drained, shallow pans. A warm, moist atmosphere is most suitable, and the plants may receive plenty of water at all times, except in the cold, dreary months of the year, when very little will suffice to keep them in proper condition.

Isleworth, London, W. *John Weathers.*

Moræa Pavonia.—It is just a century ago since this very desirable bulbous plant was introduced to England from the Cape of Good Hope. It is now well known in English gardens, but still scarce in this country. The somewhat weedy appearance of the plant and the straggling habit of its long grassy leaves give some excuse for this neglect on the part of those who have never seen it in bloom. The flowers measure almost two inches across, and are borne singly at the top of slender, knotted peduncles, which vary in length from nine to eighteen inches, or about half the length of the leaves, according to the size and quality of the bulbs. In general appearance they bear a strong resemblance to those of some small-flowered species of Iris; and, as is usual in that genus, the outer segments of the perianth are the most conspicuous. The blade of each outer segment is reflexed, and of a lilac-tinged white color, with large blotch of rich peacock blue at the base. The under side of the blade is beautifully streaked with purple, but is by no means so attractive as the upper surface. The only objection to the flowers is the brief time (seldom more than a day) they remain expanded; but they are freely produced during the spring months, and this compensates in some degree for their fugacity. The cultural requirements of this plant are of the simplest. The bulbs should be potted in fall, about six to a five-inch pot, and placed in a sunny greenhouse, or in a frame which can be secured against frost in winter. Carefulness in watering is most important, as an over-supply is dangerous at any time. After the flowering season the supply of water may be gradually decreased, and finally withheld until the bulbs are again potted. The bulbs remain in good condition if kept in the pots during the summer months, and should then have free exposure to air and sunshine, but they must be kept out. The number of plants may be increased by separating the clusters of bulbs at potting time. I lately saw a very fine collection of plants of this species grown by an amateur with no better accommodation than that afforded by a sunny sitting-room window.

There are few plants with a longer list of synonyms, a fact which perhaps may indicate its popularity in England, where the names originated. Some of these are *Iris Pavonia, I. tricuspis, I. tricuspidata, Vieusseuxia Pavonia* and *V. glaucopis.* It may be remarked that the latter genus is now included under Moræa. This plant is also commonly known as the "Peacock," or "Blue-eyed Peacock Iris."

Cambridge, Mass. *B.*

Propagating Chrysanthemums.—On the publication of my note in the issue of GARDEN AND FOREST for January 15th on the propagation of Chrysanthemums from detached stems, one of the largest propagators of this plant wrote me that "the shoots would be good for nothing, as they would harden up, throw buds and flower prematurely." This promise does not seem to have been carried out, and I note that from my layered stems some of the shoots are as strong and vigorous as could be desired and give every promise of growing on as freely as the best of my cuttings. In one or two cases the shoots showed bud and ceased to develop, but this was not general. There was no sign of hardening up in any case. "Hardening up" is a bugbear which should not trouble any one whose plants have not been made soft and sappy in heat, and even then, if care is used in gradually exposing them to air, in planting very firmly—an important detail—and in protecting from winds, there should be no losses from this cause. This experiment seems to illustrate the fact, known to observers of the Chrysanthemum, but not often noted, that the matured stems of this plant do not under proper conditions cease their functions until the young growths have made some headway in the spring, and until those fortunately placed have made some progress toward forming independent roots, after which they decay rapidly. The old stems seem either to have some vitality stored in them, bare though they may be of foliage, or perhaps they may only be open to the flow of sap and a mere channel for the conveyance of nutriment from the awakening roots, though my experiment would seem to show that root action was not essential. The strongest shoots are shown by the Chrysanthemum as the sun warms them into growth in the early spring (April here); and their strong tendency to form roots can be observed on those near the base of a stem but above the ground, which often throw out roots into the air. In overhauling the stock in the spring, one often finds an old stem with a shoot so far above ground as to have had no chance to root. If this is treated early like a grafted plant and buried so that the junction is covered, the shoot will soon make separate roots, and by the time the old plant loses its vigor, will be prepared to grow on without check.

Elizabeth, N. J. *G.*

Clianthus Dampieri.—This is one of the most gorgeous flowered, and at the same time one of the "miffiest" of the many Leguminous plants which we owe to Australia. There are few gardeners who have not been tempted by pictures or descriptions of its beauty to attempt its culture, but the number of those who have been successful is very small. There is, however, a way to success, and that is by grafting seedlings of *C. Dampieri* on young plants of *C. puniceus.* This gets one over the water difficulty, for whilst the first named invariably goes wrong at the root, presumably through excess of water, *C. puniceus* is not so particular. The seeds should be sown in April and the seedlings cut off at the base and grafted when about six inches high. A union is effected in about three weeks.

Eurycles sylvestris and *E. Cunninghamii* are the only two species of a genus of *Amaryllideæ*, and are closely related to Eucharis. They are natives of Australia and the Malayan regions, whilst Eucharis is confined to South America. In the stove at Kew both species of Eurycles are in flower and they are quite ornamental enough to be classed with useful stove bulbous plants. *E. sylvestris* has a cordate leaf a foot across, a scape a foot high, and from twenty to thirty flowers in a dense umbel. Each flower is two and a half inches across, not unlike *Eucharis candida* in form and pure white. *E. Cunninghamii* has smaller and ovate leaves, and smaller flowers in umbels of from ten to fifteen. The plants lose their foliage in autumn, when they should be rested until February and then started in a stove.

Kew. *W.*

Chionodoxa Luciliæ alba.—I will watch with interest Mr. Gerard's experiments with the seeds of the White Chionodoxa. I have tried it for two generations, and with me the seedlings invariably revert to the type.

Exochorda Alberti.—This is a very beautiful shrub, introduced from central Asia by Messrs. Albert and Eduard von Regel. It attains a height of about six feet, and all last year's growths are covered by spikes of pure white flowers, eight to ten on a spike, and about the size of large peach blossoms. Their striking appearance is heightened by the shining green foliage. It is in full flower now, on 6th of May.

Baden-Baden. *Max Leichtlin.*

Correspondence.

State Control of the Gypsy Moth.

To the Editor of GARDEN AND FOREST:

Sir.—All sensible people must heartily agree with the sentiment expressed in the editorial on "Legislation Against the Gypsy Moth," in GARDEN AND FOREST for March 26th, in which legislation against insect pests is urged, and the passing of such laws as will compel careless landholders to destroy noxious insects on their properties, so that they may not be a constant menace to more thrifty neighbors. But while many people no doubt approve of legislation by the state of Massachusetts against the Gypsy Moth at Medford, a large number feel very strongly that it is impossible to accomplish the end sought. Even if the insect had extended little beyond the bounds of the district originally assigned to it, the chances for the complete extermination of the pest were very slight. But after the Act* regarding it and the appropriation of $25,000 had been pushed through the Legislature, and the Gypsy Moth Commission appointed by the Governor had assumed its duties, it was found that the insect had spread over a territory very much larger than was at first suspected. Instead of occurring only in Medford and occupying "an area in the form of an ellipse about a mile and a half long by half a mile wide," the insect is found throughout that town and over a territory ten miles long by five or six miles in width. It is in the towns of Winchester, Arlington, Somerville, Stoneham, Melrose,

*An act to provide against the depredations by the insect known as the *Ocneria dispar* or Gypsy Moth, and against its spreading and for its extermination, in this commonwealth.

Malden, Everett, Revere and Chelsea. It is admitted that it has got into the Middlesex Fells, a natural park dear to every naturalist and lover of nature about Boston, and there is little doubt that the pest is within the limits of Cambridge.

The greater range of the pest naturally necessitates increased expense in the attempt to control it, and it is expected that the Legislature before adjournment will grant another appropriation at least as large as the first.

Since the Commission was organized the destruction of the Gypsy Moth has been vigorously pushed. The clusters of eggs were first attacked. These were found on the trunks and larger branches of trees and shrubs, on fences, walls, buildings, piles of lumber, etc. The principal means used in destroying them was lighted kerosene torches, by which the eggs were burned in the positions in which they were found, and the trunks and limbs of the trees plainly show wherever the torches were applied. This work was begun at the end of March and was continued for several weeks. Sixty or seventy men were employed and a hundred barrels of kerosene used. In some cases it was found necessary to pull down stone and other fences in order to get at the eggs. Many acres of infested woodland have been cut down or have had all the underwood removed and burned.

Very early in May the young larvæ were found to have hatched from the eggs, and on the twelfth of the month spraying the vegetation with insecticides was begun. At present a dozen machines are at work, and this number is to be increased.

Each equipment consists of a large cask or hogshead, mounted upon a cart or wagon, a force pump and from 100 to 200 feet of hose with nozzles, besides ladders and some other accessories. The poison chiefly used up to this time is Paris Green, diluted to the proportion of one pound of Paris Green to 150 gallons of water. Five men are employed with each spraying apparatus. The law invests the Commissioners with the power to enter and work in any private property in pursuit of the Gypsy Moth. Trees, shrubs, vines and garden plants of every description are usually all sprayed, but it is not intended or thought necessary to spray grain or grass and a few similar crops. It will be necessary to do the spraying several times over in order to clear the infested ground of all larvæ, and nobody expects that the desired results will be accomplished in one season. The law imposes a severe penalty by fine and imprisonment upon any one who knowingly carries the living insects to other places. But no systematic regulations have been made looking to the prevention of the further spread of the pest. Some farmers, who carry large quantities of manure, etc., out of Medford, have had to agree to carefully examine their loads to see that none of the insects are carried out with them when they pass beyond certain limits of the town. I have not learned that any railroad train is subject to examination before leaving. There are tanneries, brickyards and other industries carried on at Medford, and many freight cars are always about either with or waiting for loads, and the possibility that in the course of the years in which it has been in the town, the insect in any of its stages has already been carried to far distant points can be understood by those who are familiar with the history of the introduction and distribution of other obnoxious animals. It is maintained by some that the sluggish habit of the large female moths is against its having spread far, and that such a conspicuous insect could not have reached other places without having been detected. But it is a remarkable fact that the Gypsy Moth, within five miles of Boston, and which must have been increasing for about twenty years, was for so long a time never noticed or reported by an entomologist or distinguished by any one from an ordinary native "moth miller."

Professor C. V. Riley's success in combatting the Cottony Cushion Scale in California by the importation of its Australian parasites, very naturally raises the question whether a little money spent in the introduction of some of the most effective parasites of the Gypsy Moth in Europe may not finally be the best way to keep it within reasonable bounds in this country.

Indeed, it is stated that Mr. Trouvelot, who is known to have been the unlucky agent in the introduction of the Gypsy Moth, had to give up all his attempts at raising silkworms at Medford on account of a fatal disease which he also accidentally introduced, and which is said to have destroyed immense numbers of other native species of insects besides the silkworms. It was supposed that the disease had destroyed all of the escaped Gypsy Moths.

If the Legislature makes further grants of money under the almost absurd idea of compassing the extermination of the pest, there is likely to be some disappointment in the results after the lapse of a few years. But if the appropriations are given with the understanding that they accomplish the temporary control of the insect in the infested region, the liberal use of Paris Green is going to give Medford and surrounding towns temporary freedom from foliage-eating insects of all kinds, and, in consequence, the vegetation of the region should be the fairest in the commonwealth.

Arnold Arboretum. *J. G. Jack.*

What is an Orchid?

To the Editor of Garden and Forest:

Sir.—Will some one tell me what properly constitutes an Orchid? They are "peculiarly formed," I know, but so are other flowers which are not classed with this family of *Orchidaceæ*. It was my childish belief that Orchids grew in the air only, but this error of childhood is corrected by my acquaintance with *Orchis spectabilis* and *Cypripedium pubescens*, also *Cypripedium acaule*, all three of which are now growing in my rockery. And last year I found in one of our charming lanes the *Spiranthes simplex*—Ladies' Tresses—another earth-growing Orchid.

Catskill, N. Y. *E. F. B.*

[All Orchids are not "Air-plants," so called. Our native species, without exception, grow in the ground, although many of those which flourish in the tropics and which are cultivated in temperate countries under glass receive their nourishment from the moisture in the air. Plants of the Orchid family differ from all others in the arrangement of their organs of reproduction, which are united into a column composed of a single, or, in case of the Lady's Slipper, of two stamens coherent with or borne on the style or thick fleshy stigma. The perianth of the flower is composed of six divisions, arranged in two sets, each of three. The three outer divisions are called sepals, and often resemble in texture and color those of the inner set, called petals. One of the inner set of these divisions differs from the others in shape and direction, and is called the lip—the sack of the Lady's Slipper. This is really the upper petal—that is, the one next to the axis of the flower—but by a half twist of the ovary it is made to appear as if it were the lowest. These elements—sepals, petals, lip and column—varied almost without limit in form and color, combine to produce the almost infinite number of widely differing forms which are so fascinating in their oddity, quaintness and beauty. Orchids are found in all warm and temperate parts of the world, although they are more abundant in the tropics than elsewhere. They are perennial plants, often with tuber-bearing roots, and the peculiar structure of their flowers renders impossible their unaided fertilization, for which they depend on the visits of insects.—Ed.]

Planting Street Trees.

To the Editor of Garden and Forest:

Sir.—Your article on street trees recalls an example similar to the one you cite. I was engaged on some public works in a western city and was consulted by the city government about planting a principal avenue. In reply to an inquiry I stated my terms for taking charge of the work, which were pronounced satisfactory. A few days after I was informed that the city government had found a man who had offered much more favorable terms, which had been accepted. As I had to pass through the avenue every day I could watch the progress of the work. The trees were Elms, brought from the fields, eight or ten inches in diameter, and, as I learned, were furnished and planted for $16 each. They would average twenty-five feet in height, but had been cut in so that they showed only stumps of branches, and for roots each one had a knob at the bottom which could almost have been put in a bushel-basket. There was no preparation of the ground, but the holes were dug large enough to receive the so-called roots, and the trees were stuck in and the knobs buried. This was in the spring, and 246 trees were thus planted at a cost of $3,936. On the 31st of June of the following year only eighty-four trees showed any sign of life, and not one of them would have been suffered to remain in any properly cared for grounds. One year later only thirty-one put out a leaf here and there, and soon these were removed as worthless.

No doubt some of the members of that City Council prided themselves for looking closely after the public interests and getting the avenue planted with such fine large trees at such a low cost.

Minneapolis, Minn. *H. W. S. Cleveland.*

Horticultural Society of Japan.

To the Editor of GARDEN AND FOREST:

Sir.—A meeting of this Society was held at Uyeno Park, Tokio, on the 9th of March, in the building of the Japanese Art Association, with the President of the Society, H. E. Hanabusa, in the chair. The hall was beautifully decorated with collections of rare and showy plants and works of art, among which was a model of Korakuen, a well known garden of Tokio, beautifully executed, with other equally interesting models, landscape designs, hedges, porcelain seats, stone lanterns, bird-cages, stones of curious shape, and, in a word, everything needed to make an attractive garden. Choice vases for flowers, and rare pieces for tea ceremony, were also worthy of attention. Quite as praiseworthy were the flowers and works in marble to represent forms of European gardening. There were implements of gardening from the Department of Agriculture, photographs of famous European garden-scenes, and a valuable library of reference works on gardening, both Japanese and foreign. It was said that the exhibition surpassed in interest the display of the Horticultural Department of the Industrial Exhibition now open in Tokio.

The first address was by H. E. Tanaka, Vice-President of the Society, and one of the leading naturalists of the time. "Instruments of Gardening" was the subject of Mr. Ikeda, and the meeting concluded with an instructive address by H. E. Enomoto, Minister of State for Public Education. H. E. Mayeda, Vice-Minister of the Agricultural Department, was present, and during the evening Mr. Tanaka introduced a magic lantern, with many illustrations and figures relating to horticulture.

This Society promises to be a considerable factor in the horticulture of the country.

Tokio, Japan. *Iwabuchi.*

Recent Publications.

How Crops Grow. A treatise on the Chemical Composition, Structure and Life of the Plant for students of agriculture, by Samuel W. Johnson, M.A. New York, Orange Judd Company, 1890.

This is a new edition of the well known and classic work which appeared more than twenty years ago, and which, with its companion treatise, "How Crops Feed," holds the first rank among American contributions to agricultural science. Since these works were originally prepared, our knowledge of the processes of plant nutrition and of the other subjects considered in them has greatly advanced, and this revision is an exposition of the present condition of the science of agriculture—so far as it is based on the chemical composition of plants, their structure and life. As the author points out, agricultural science in its widest scope comprehends a vast range of subjects and lays under contribution almost every department of human learning. It is closely concerned with the sciences of geology, meteorology, mechanics, physics, chemistry, botany, zoology and physiology, as well as with social and political economy. The topics treated in this volume, however, are those which directly interest the farmer in his daily dealings with plants, soils and fertilizers, or, to quote Professor Johnson's words in the introductory chapter of the volume: "How the plant grows—the conditions under which it flourishes or suffers detriment—the mode of its construction and organization—how it feeds upon soil and air—how it serves as food to animals—how the air, soil, plant and animal stand related to each other in a perpetual round of the most beautiful and wonderful transformations—these are some of the grand questions that come before us; and they are not less interesting to the philosopher or man of culture than important to the farmer who depends upon their practical solution for his comfort; or to the statesman who regards them in their bearings upon the weightiest of political considerations." In this clearly defined field Professor Johnson's writings have proved not only of practical advantage to working farmers, but they have commanded the respect of men of science, and perhaps no other agency in the country has been so potent in encouraging serious research in the sciences related to agriculture and in elevating the character of agricultural discussion in the periodical press.

Perhaps one of the most important services rendered by this book has been its influence in establishing the practical value of science to the farmer—in showing him that genuine science is not something remote and fanciful, but immediately useful truth. The persons who hold that there is an essential conflict between theory and practice, and that narrow individual experience is of greater value in agriculture or horticulture than the wider generalizations of science, should study these sentences, which are taken from the introduction to "How Crops Grow": "Science employs, in effecting its progress, essentially the same methods that are used by merely practical men. Its success is commonly more rapid and brilliant, because its instruments of observation are finer and more skillfully handled; because it experiments more industriously and variedly, thus commanding a wider and more fruitful experience; because it usually brings a more cultivated imagination and a more disciplined judgment to bear upon its work. The devotion of a life to discovery or invention is sure to yield greater results than a desultory application made in the intervals of other absorbing pursuits. It is, then, for the interest of the farmer to avail himself of the labors of the man of science, when the latter is willing to inform himself in the details of practice so as rightly to comprehend the questions which press for solution."

It is needless to add that Professor Johnson has taken care to inform himself on the points where science and practice come into contact, and that the revised edition neglects none of the important discoveries in physics, chemistry or biology which, in recent years, have done so much to aid the farmer in his legitimate work of winning from the soil at the least cost the greatest possible amount of certain animal and vegetable products.

Notes.

The new crop of sweet potatoes is beginning to come in from the south. Gooseberries, too, are now found in market, and apricots from California are already quite plentiful.

A Mr. Lathan, of Eddisburg, near Liverpool, possesses a gigantic Camellia twenty feet in height, as much in the diameter of the head, and thirty inches around the stem, from which he annually sells $300 worth of flowers.

Our esteemed correspondent, Dr. Charles Bolle, of Berlin, has recently been appointed inspector of the Department of Parks and Gardens of that city, a position which will enable him to make available his great knowledge for the benefit of the public.

A Pine Forest Land Improvement Company with a capital of $1,000,000 has been incorporated at Lakewood, New Jersey. A new hotel will be built by the association, but it is understood that it will give special attention to the preservation of the Pine lands of the county and to the planting of new tracts.

Professor Green, of the Ohio Experiment Station, recommends the use of rubber bands in bunching asparagus as less likely to injure the stalks than unelastic strings. To fit the band around the upper end of a bunch the heads of the shoots may be placed in a teacup, and the band gently slipped from the cup around the bunch.

By order of the court a Rhenish railroad company recently paid $625 for five full grown and five young Apple-trees, which stood on a bit of ground that had been condemned for its use. Another company in Prussia was obliged, in the year 1886, to pay $600 for a single Cherry-tree, as it was proved that its product annually sold for at least $25.

A recent issue of the *Rural Pacific Press* contains a portrait of a remarkable specimen of Dr. Parry's *Arctostaphylos Manzanita* growing at Helena, California. It is a wide-spreading shrub separating into several branches just above the surface of the ground, where the short trunk girths eleven feet and six inches. It has attained a height of from thirty to thirty-five feet, the head spreading thirty-six and thirty feet in the two directions.

The Paulownia is flowering this year in the Public Garden in Boston, a very unusual, if not an unheard of occurrence in eastern Massachusetts, where the tree just survives, forming its flower-buds sometimes in sheltered situations, and then almost invariably losing them again during the winter. It usually flowers well in this latitude, however, and the trees in Central Park are still covered with beautiful and fragrant blossoms.

Foreign journals state that Herr Bornmüller, while exploring the districts east of the Black Sea, recently discovered a new Poplar, a natural hybrid between *Populus alba* and *P. nigra*. It resembles the former in the large sharp teeth of its leaves and in the thick white tomentum which covers the lower surface of the young leaves and twigs, while it approaches *P. nigra* in the three-cornered shape of the leaves, which later become entirely green.

Reports from Tiflis say that the phylloxera has invaded parts of the Caucasian region where hitherto it had been unknown,

large quantities of infected vines having been discovered in the province of Kutais. Radical measures are to be used to stamp out the pest, but the enormous extent to which it has already spread will render them difficult of application, and the government has arranged that experiments shall at once be made with American Vines.

Monsieur Croux, the French nurseryman, exhibited, according to a report published in a late issue of the *Revue Horticole*, an interesting collection of Magnolias before the National Society of Horticulture of France. The collection contained, besides the varieties of the Chinese Magnolias ordinarily cultivated, *Magnolia spectabilis*, with small white flowers flushed with pink; *M. hybridia speciosa*, described as similar to *M. Soulangeana*, although later in blooming; *M. Norbertinia*, the latest flowered of all the Magnolias derived from *M. conspicua; M. rosa grandiflora*, a seedling raised by M. Lenné, with large, handsome rose and white flowers and one of the best varieties, and *M. odoratissima*, a hybrid between *M. conspicua* and *M. Lenné* with large, rose-white, fragrant flowers.

In an article recently published in the *Fortnightly Review* Mr. Beatty-Kingston names 10,000,000,000 francs as the amount of the loss suffered in wine-growing France between the years 1875 and 1887 by the ravages of the phylloxera and fungoid pests. Now, however, they seem to have been definitely vanquished. In the Médoc district the vines have recovered themselves since 1882, when the ground around them was saturated with a solution destructive to the phylloxera; and the yield for the three past years has greatly exceeded the previous average, and, indeed, has prophesied a future yield of unparalleled richness. Last year the vineyards of Château Lafitte alone produced 1,200 hogsheads of wine, and 66,000,000 gallons were produced in the Gironde district.

The Annual Administration Report of the Forest Department (Southern and Northern Circles) of the Madras Presidency for the financial year 1888–1889 has reached us, and contains a large amount of technical information with regard to the workings of the department, with notes upon various plants cultivated on a larger or smaller scale by the forest-department. It appears that three hundred and ninety-eight square miles of reserved forests and one hundred and forty-five square miles of reserved lands have been added during the year to the areas under the immediate control of the department. The financial results of the year show a handsome balance in spite of numerous extraordinary expenses, and demonstrate the success of forest-administration in India.

In the last number of the *Revue Horticole* which has reached us the attention of cultivators of the Lilac is directed to the fact that the regular blooming of the Lilacs in the public gardens of Paris is obtained by an annual pruning, which serves also to keep the plants in shape and within reasonable bounds. Every year, after the flowers have passed, the flowering branch is cut back to the bud at its base. By this means all the strength of the plant is thrown into the branches which have not flowered. These branches then grow vigorously, and are thus able to develop the terminal buds which assure the flowers of the following year. The practice is one which might be more generally observed than it is, especially as Lilacs, unless they are pruned, occasionally grow beyond ordinary limits and do not always flower regularly every season.

Among the rare Orchids now in flower in the collection of Mr. F. L. Ames, North Easton, Massachusetts, are three varieties of *Cattleya Reineckiana*, one of the specimens with twenty and the other with sixteen flowers; *C. Wagneri;* six fine plants of *C. Warneri; C. Mendelii grandiflora; C. imbricata; C. Mossiæ aurea* and *C. Mossiæ Peetersi; Oncidium Krameri lutea; Cœlogyne Dayana* (seven spikes); *C. tomentosa; Eriopsis rutidobulbon; Epidendrum O'Brieni; Maxillaria Sanderiana; Dendrobium polyphlebium; Cypripedium Mastersi; C. Euryale; C. Curtisi; C. leucorrhodum; Odontoglossum excellens; Masdevallia ignea Goorei; M. Harryana regalis* in variety; *M. Geleniana; Dendrobium Falconeri giganteum* and half a dozen of the best varieties of *Lælia purpurata*, all superb plants. Here, too, is a specimen of *Catileya Skinneri*, which is more than six feet in diameter, and bearing forty spikes, with some 400 flowers altogether.

Concerning the plant *Aristolochia Goldieana*, which has been flowering at Kew and which has been described in these columns by our London correspondent, the *Journal of Horticulture*, speaking of the beauty of the flower and its grotesque disproportion to the plant which produced it, says: "The plant might have been crumpled up into a man's hand, but the one flower it produced could not have been perfectly concealed in a peck measure. The tube was ivory white, the spreading limb formed a huge goblet, on the outer side dull green, lined and veined with dull purple; on the inner side superbly colored with bold lines and arabesque markings of a deep purplish chocolate on a rich ground of old gold. The penciling in the throat was even more beautiful than in the cup, and the translucent texture added an indefinable charm, as though the material were of a kind hitherto unknown in the vegetable kingdom."

Monsieur E. Gilbert, discussing in the *Moniteur d'Horticulture* the early days of horticulture (L'Horticulture dans ses origines sacrées ete profanes), tells us that in the Middle Ages medlars held the first place among cultivated fruits. It was the medlar, it seems, which was used as the foundation of the preserves of Orleans known as Cotignac, which were so famous that when a French sovereign entered the town a box of Cotignac was always offered to him, and it was a box of these preserved medlars which was the first present made by the people of Orleans to Joan of Arc when she led her troops to the assistance of the beleaguered city. The medlar was used as a preserve as well as to season meats, just as cresses are used now. The introduction of the Bon Crétien Pear, which is the same as the American Bartlett, dates, Monsieur Gilbert tells us, from the reign of Louis XI., during which the venerable Francois de Paule brought it from Spain and introduced it into the royal gardens. During his fatal sickness the King asked for this fruit to quench his thirst, calling it "the pear of the good Christian," in honor of the holy man who had brought it to France. And the pear Louise-Bonne owes its name, it appears, too, to Louise of Savoy, the mother of Francis I., who first cultivated it in France.

The death is announced of Monsieur Alphonse Du Breuil in his eighty-fifth year. Monsieur Du Breuil was one of the most popular and best known authors and lecturers on the management of fruit-trees in France. He was born at Rouen in 1811, in the botanical garden of which his father was the head gardener. He commenced his career as a lecturer in the Normal School and in the School of Agriculture of his native town, where, later, he established in the Botanic Garden a remarkable collection of fruit-trees. Called to Paris, he first became conspicuously known by a course of lectures on the cultivation of fruit-trees delivered in the Conservatoire des Arts et Méttiers. In 1853 the French Minister of Agriculture employed him to travel over France for the purpose of giving instruction in the cultivation of fruit-trees. This duty he performed during many years, traveling during six months in all the departments, where he trained many local instructors. Monsieur Du Breuil is best known to the general public by his "Cours d'Arboriculture," published in 1846, a work which had much success and ran through several editions and of which a résumé was published for the use of gardeners. Monsieur Du Breuil's influence must have been very great in his day, and the effects of his instruction are seen not only in the excellence of the French methods of cultivating fruit-trees, but purely ornamental trees as well, to which he devoted much attention.

The most conspicuous of the shrubs now in flower in Central Park are the various Weigelas, which are blooming in remarkable profusion. The masses of *Deutzia gracilis* are also strikingly beautiful. There are many good specimens of the Virginia Fringe-tree, a particularly fine one being on the borders of the lake near the Webster statue. The old-fashioned Snowball, with its flowers hanging in great clusters from the ends of arched branches, is still at its best, and it has no superior among later introductions. The Japanese Snowball (*Viburnum plicatum*) makes a compact bush, and is very effective for a mass of bloom, but it lacks the grace of the older plant, and can never supersede it. The white *Cratægus pyracantha* shows now to best advantage, a mass of it near the Bolivar statue being especially worthy of mention. The early flowering Tamarisks, too, wherever they were subjected to a severe pruning last year, have been uncommonly floriferous. One of the most interesting spots in the park for lovers of flowers is the great irregular mass of *Rosa rugosa* near the conservatory lake. A group of the real Scotch Broom (*Cytisus scoparius*) near the Terrace is much admired for the abundant yellow flowers, which can be seen at a great distance. An excellent place to see many of the best shrubs in bloom is along the new branch of the bridle path bordering the pool near Seventy-seventh Street; and besides the shrubbery one can here see a fine effect of the Japanese Ampelopsis on the boundary wall. Only a portion of the stone is covered, and the proper character of both stone and vine and their true relation have been retained.